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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------|-------------|----------------------|---------------------|------------------|
| 10/785,396 | 02/23/2004 | Walter D. Micher | KLAIP117X1A/PI151/I | 6516 |
| 61736 | 7590 | 06/14/2007 | EXAMINER | |
| BEYER WEAVER LLP/KLA | | | STOCK JR, GORDON J | |
| P.O. BOX 70250 | | | | |
| OAKLAND, CA 94612 | | | | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2877 | |
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| | | | 06/14/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/785,396 | Applicant(s) MIEHER ET AL. | |
| | Examiner Gordon J. Stock | Art Unit 2877 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2007 and 02 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 19, 20, 22-30 and 38-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 19, 20, 22-30, 38-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20070406</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Amendment received on April 2, 2007 has been entered into the record..

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on April 6, 2007 has been considered by the examiner.

Drawings and Specification

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **T2** of Fig. 2a..
Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
4. The drawings and specification are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **OVL** of Fig. 3b; **502, 503, 504, 505, 506, 508, 509, 510, 512, 514, and 524** of Fig. 5a; **704** of Fig. 7; **1184 and 1188** of Fig. 11f. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to

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avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The Drawings received on January 22, 2007 are objected to for these drawings were for a submission for application 10/785821 (see action: 20070222).

6. The specification is objected to for the following: on page 31 line 11 it appears that 'where k' should read –where k is a constant-. In addition, on page 31 line 10 there appears to be a discrepancy between the use of parentheses in the first and second harmonic terms in the expansion. Corrections required.

Claim Objections

7. **Claim 1** is objected to for the following: 'the set of periodic functions' of line 13 lacks antecedent basis. Correction is required.

8. **Claim 4** is objected to for the following: on line 7 'is ϵ ' should read - ϵ is-. Correction is required.

9. **Claim 6** is objected to for the following: 'the optical' should read –the optical system-; and 'the wavelength modulation device' lacks antecedent basis. Corrections required.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. **Claim 1** is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over **claims 1-13 of U.S. Patent Application 10/785,723 (Mieher et al.)**. Although the conflicting claims are not identical, they are not patentably distinct from each other because **claims 1-13 of U.S. Patent Application 10/785,723 (Mieher et al.)** anticipate **claim 1 ('396)** for both sets of claims are to a method for determining an overlay error between at least two layers in a multiple layer sample comprising: employing an optical system for determining an overlay error by measuring a plurality of periodic targets with predefined

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offsets between first and second structures and using a scatterometry overlay technique to analyze the measured optical signals; wherein, the scatterometry overlay technique is a phase based technique that analyzes a set of periodic functions to determine overlay error that is then stored.

12. **Claim 1** is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over **claims 1-4, 7-10, and 12 of U.S. Patent Application 10/785,395 (Mieher et al.)**. Although the conflicting claims are not identical, they are not patentably distinct from each other because **claims 1-4, 7-10, and 12 of U.S. Patent Application 10/785,395 (Mieher et al.)** anticipate **claim 1 ('396)** for both sets of claims are to a method for determining an overlay error between at least two layers in a multiple layer sample comprising: employing an optical system for determining an overlay error by measuring a plurality of periodic targets with predefined offsets between first and second structures and using a scatterometry overlay technique to analyze the measured optical signals; wherein, the scatterometry overlay technique is a phase based technique that analyzes a set of periodic functions to determine overlay error that is then stored.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. **Claims 1-16, 19, 20, 22-30, and 38-40** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one

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skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, **claim 1** states that the optical signals are represented as a period function (line 11) having a plurality of measured known parameters which are obtained from each measured optical signal (lines 12-13). However, the specification states that the signals are represented as a set of periodic functions having a plurality of known parameters that are not measured, a predefined offset and a period (page 31 lines 3-13). Therefore, 'representing each of the measured optical signals as a periodic function having a plurality of measured known parameters, which are obtained from the each measured optical signal' was not reasonably conveyed at the time the application was filed. **Claims 2-16, 19, 20, 22-30, and 38-40** are rejected for being depended from a rejected base claim.

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. **Claims 24 and 25** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 24 and 25 recite the limitation "operations (a) and (b)" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Allowable Subject Matter

17. **Claims 1-16, 19, 20, 22-30, and 38-40** would be allowable if the double patenting rejection as well as the rejections under 35 U.S.C. 112 first and second paragraph are overcome.

As to **claim 1**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for determining an overlay error between at least two layers in a

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multiple layer sample the particular phase based technique that includes the analyzing of a set of periodic functions, in combination with the rest of the limitations of **Claims 1-16, 19, 20, 22-30, and 38-40**

Response to Arguments

18. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. As for the rejection of **claims 24 and 25** under 35 U.S.C. 112 second paragraph which were previously considered allowable subject matter (see action: 20061013) the Examiner apologizes for the inconvenience but upon further consideration a new rejection under 35 U.S.C. 112 second paragraph has been made.

Terminal Disclaimer

19. The terminal disclaimer filed on April 2, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of **10/785,731** has been reviewed and is accepted. The terminal disclaimer has been recorded.

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The

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form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (571) 273-8300

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

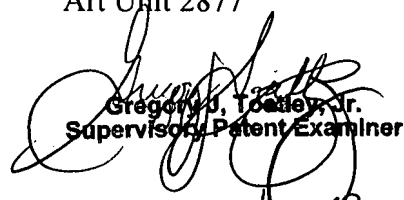
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS

gs
June 6, 2007

Gregory J. Toatley, Jr.
Supervisory Patent Examiner
Art Unit 2877


Gregory J. Toatley, Jr.
Supervisory Patent Examiner
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